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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,642	12/15/2003	Erwin Van Zwet	081468-0307212	9080
909	7590	06/06/2006	EXAMINER	
PILLSBURY WINTHROP SHAW PITTMAN, LLP			NGUYEN, HUNG	
P.O. BOX 10500			ART UNIT	
MCLEAN, VA 22102			PAPER NUMBER	
			2851	

DATE MAILED: 06/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/734,642

**Applicant(s)**

ZWET ET AL.

**Examiner**

Hung Henry V. Nguyen

**Art Unit**

2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 and 21-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18, 21-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/23/06</u> | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 5, 11, 16-18, 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (U.S.Pat. 5,610,683) in view of Hwang et al (U.S.Pat. 6,185,085).

With respect to claims 1, 5, 11, 16-18 and 22-24, Takahashi discloses a lithographic apparatus comprising substantially all of the limitations of the instant claims such as: an illumination system (3) for providing a beam of radiation on a flat article (wafer) on an article support (12) in a beam path of the beam of radiation (see figure1); an article handler (11-3, 11-4) to move the article (wafer) during placement of the article on or removal of the article from the article support. Takahashi does not expressly disclose the article handle having an electrode and a dielectric layer for forming an electrostatic clamp for electrostatically clamping the article as recited in the instant claims. It is however noticed that a use of an electrostatic holding apparatus for transporting and/or attracting and fixing a wafer by means of electrostatic force is well known per se. For example, Hwang et al (figures 1-3) discloses an electrostatic handler (20) for transporting a semiconductor wafer (26) between a staging area and a processing station (see abstract). Hwang teaches the electrostatic handler (20) comprising two electrodes (42, 57) and a dielectric layer (44) for forming an electrostatic clamping for electrostatically clamping the

Art Unit: 2851

article (26). In view of such teachings, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teachings of Takahashi and Hwang to obtain the invention as specified in the mentioned claims. It would have been obvious to a skilled artisan to employ the electrostatic handle as taught by Hwang into the lithographic apparatus of Takahashi for the purpose of moving the article/wafer during the placement of the article/wafer on or removal of the article/wafer from the article support as suggested by Hwang.

3. Claims 4 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (U.S.Pat. 5,610,683) in view of Hwang et al (U.S.Pat. 6,185,085) in view of Blake et al (U.S.Pat. 5,436,790).

With respect to claims 4 and 21, Takahashi et al as modified by Hwang et al discloses substantially of the limitations of the instant claim as discussed except for a presence detector for detecting the presence of the article as recited in the instant claim. Blake et al discloses an electrostatic handler for handling an article and having a presence detector for detecting the presence of the article through a measured capacity formed on an electrode, and the dielectric layer of the handler (see col.5, lines 42-58). It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teachings of Takahashi, Hwang and Blake et al to obtain the invention as specified in claims 4 and 21 of the present invention. It would have been obvious to a skilled artisan to employ the presence detector as taught by Blake et al into the article handler of Takahashi as modified by Hwang for the purpose of detecting the presence of the article on the handler and thus the status of the handle can be determined.

4. Claims 2-3, 6-10, 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (U.S.Pat. 5,610,683) in view of Hwang et al (U.S.Pat. 6,185,085) in view of Kitabayashi et al (U.S.Pat. 5,530,616).

With respect to claims 2-3, 6-10, 14, Takahashi as modified by Hwang et al discloses a lithographic apparatus comparing substantially all of the structures set forth in the instant claims except for the details of the article handler as recited in the instant claims. Kitabayashi et al teaches an electrostatic handler having all of the claimed limitations such as: an article handler (1) having at least three mutually distanced contact members (5) for contacting the articles (W), a dielectric layer (3) is provided with protrusions (5) to provided a gap between the dielectric layer (3) and the article (W) and the gap ranges between 0.1 and about 5 microns (see col.6, lines 33-35), the diameter of each of the protrusions is at most 3mm (see col.2, lines 43-44) and the electrostatic clamp is designed to provide a clamping pressure greater than about  $1.10^4$  Pa (see col.6, lines 50-51). Kitabayashi further teaches a metal pad bonded to the electrode in order to form a terminal for wiring and connecting the electrode to a power source. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teachings of Kitabayashi, Takahashi and Hwang, to obtain the invention as specified in the instant claims. It would have been obvious to a skilled artisan to modify the article handler of Takahashi and Hwang as taught by Kitabayashi for the purpose of providing a proper electrostatic clamping force for transporting the article.

As to claims 8-10, 12-13, and 15, Takahashi as modified by Hwang and Kitabayashi lacks to show the material of the dielectric being at least of SiO<sub>2</sub> and SiN and the dielectric layer

Art Unit: 2851

being less than 50 microns and a dielectric constant being greater than about 3, as well as, the metal pad formed of the electrode being an Al layer. Since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability of the intended use as a matter of obvious design choice. It would have been obvious to a skilled artisan at the time the invention was made to select thickness and material of the dielectric layer as specified in the instant claims for the purpose of providing a proper clamping pressure of the electrostatic handle.

### ***Response to Arguments***

5. With respect to prior art rejections, Applicant's arguments filed March 23, 2006 have been carefully reviewed but they are not found to be persuasive.

The applicant is reminded that the claimed subject matter to examination will be given their broadest reasonable interpretation consistent with the specification, and limitations appearing in the specification are not be read into the claims. *In re Yamamoto*, 740 F. 2d 1569, 1571, 222 USPO 934, 936 (Fed.Cir. 1984).

With this in mind, the discussion herein will focus on how the terms and relationships thereof in the claims are met by the references. Response to any limitation that is not in the claims or any argument that is irrelevant to or does not relate to any specific claimed language will not be warranted.

With respect to independent claim 1, the Applicant has responded to the 35 U.S.C. 103(a) rejection under the references of Takahashi and Hwang et al, by commenting on the individual references and stating "there is absolutely no motivation to combine Takahashi with Hwang et

al” and “there is not reasonable expectation that such a combination would be successful”. The Examiner respectfully disagrees with the applicant. Firstly, in response to Applicant’s piecemeal analysis of the references, it has been held that one can not show non-obviousness by attacking references individually where, as here, the rejections are based on combinations of references. *In re Keller*, 208 USPQ 871 (CCPA 1981).

Secondly, in response to Applicant’s arguments that there is no motivation to combine the references, the Examiner recognizes that references cannot be arbitrarily combined and that there must be some reason why one skilled in the art would be motivated to make the proposed combination of primary and secondary references. *In re Noviya*, 184 USPQ 607 (CCPA 1975). However, there is no requirement that a motivation to make the modification be expressly articulated. The test for combining references is what the combination of disclosures taken as a whole would suggest to one of ordinary skill in the art. *In re McLaughlin*, 170 USPQ 209 (CCPA 1971). References are evaluated by what they suggest to one versed in the art, rather than by their specific disclosures. *In re Bozek*, 163 USPQ 545 (CCPA). The case law is rather clear on this point. For example, *In re Basecom*, 109 USPQ at 100 states:

The proper inquiry should not be limited to the specific structure shown by the references, but should be into the concepts fairly contained therein, and the overriding question to be determined is whether those concepts would suggests to one skilled in the art the modification called for by the claims. *IN re Ewald*, 26 C.C.P. A (Patents) 1312, 104 F.2d 622, 42 USQP 35. *In re Merkle*, 32 C.C.P.A (Patents) 1151, 150 F.2d 445, 66 USPQ 165.

In this case, with respect to claims 1, 5, 11, 16-18, 22-24, the combination of Takahashi and Hwang, as a whole, discloses all of the limitations of the instant claims. The Applicant is ignoring the combination suggested by the teachings of the references and addresses the individual references. Even there, however, the Applicant has mischaracterized the disclosure of

Art Unit: 2851

the references. The independent claims addressed by the Examiner are extremely simple. In essence, the claims recite utilizing an article handler having an electrode, a dielectric layer for electrostatically clamping an article in a lithographic apparatus, the article handler is used to move the article during placement of the article on or removal of the article from the article support. As noted in the prosecution history, Takahashi discloses a lithographic apparatus having an illumination system for providing a beam of radiation and a conveying device (11-1) which can be regarded as “claimed article handler” for moving a cassette (9) which can be regarded as claimed article” during placement of the cassette/article on its support. As discussed, Takahashi does not expressly disclose the conveying device/article handler being an electrostatic handler. However, an electrostatic handler having basic features such as: an electrode, a dielectric layer for forming an electrostatic clamping force is well known in the art (emphasis applied). The clear evidence is: Hwang et al’085 (figures 1-3) discloses an electrostatic handler (20) for transporting a semiconductor wafer (26) between a staging area and a processing station. Hwang teaches the electrostatic handler (20) comprising two electrodes (42, 57) and a dielectric layer (44) for forming an electrostatic clamping for electrostatically clamping the article (26). Since the rejection is made under 35 U.S.C. 103(a) the issue here is whether or not, one having ordinary skill in the art in the possession of Takahashi would have used the electrostatic handler of Hwang to transport the cassette/article during placement of the cassette on or removal from its support. As clearly disclosed in Hwang, “more recently, electrostatic clamping has found increasing use” (emphasis applied) (see col.1, lines 32-33). It is apparent to the Examiner that the artisan viewing Takahashi and wanting to transport the cassette/article (9) during placement of cassette/article or removal of the cassette/article (9) from its support, would clearly have



Art Unit: 2851

suggested the use of an electrostatic handler as taught by Hwang for “without the need for mechanically clamping” (see col.3, lines 22-23 of Hwang).

Applicant then argues “although Hwang et al teaches the use of an electrostatic arm to transport a semiconductor wafer, there is absolutely no teaching in Hwang et al that such an electrostatic arm may be used to transport a cassette that not only includes a wafer, by an optical element and liquid as well” the applicant further stated that “there is no reasonable expectation of success that such an arrangement would work, given the fact that the cassette of Takahashi will have a much greater weight than the wafers of Hwang et al ., and that the arm would have to somehow be reconfigured to have the ability to grasp a cassette out of a cassette stock”; the Examiner respectfully disagrees with the applicant. There are several problem with this approach because in the broadest sense, the cassette (9) of Takahashi can be regarded as the claimed “article”. There is no difference between the “cassette” and the “article” as claimed. It is noted that the feature upon which applicant relies (i.e., weight of the article) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Furthermore, controlling the attracting force by changing the voltage applied to the electrode in accordance with weight of the article is to presume less than ordinary skill on the part of the artisan and this task is so simple and it does not need to require to reconfigure the electrostatic arm of Hwang, as argued by the Applicant.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so

Art Unit: 2851

long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

As to the rejection of claims 4 and 21 under the references of Takahashi, Hwang and Blake, applicant argues that the Blade suggest the use of an electrostatic clamp to clamp a wafer to a wafer support but does not even disclose an article handler to move the article during placement of the article on, or removal of the article from the article support as recited in claim 1. In general, the “electrostatic clamp to clamp a wafer to a wafer support” of Blade can be regarded as claimed “article handler” of claim 1 of the present application and again, the applicant is reminded that the rejection here is made under 35 U.S.C. 103(a). Accordingly, there need not be a clear suggestion that “the wafer support disclosed may be modified for use in an article handler”. The disclosure of Blake (see abstract) would clearly provide a motivation to one of ordinary skill in the art to detect the presence of the article through a measured capacity formed on an electrode, and the dielectric layer of the handler (see col.5, lines 42-58). The person having ordinary skill in the art is usually a graduate engineer. The Examiner fails to find applicant’s arguments convincing that the claimed invention would have been unobvious to such a person.

With respect to dependent claims 2, 3, 6-10, 12-15, it is noted that the applicant merely repeated the arguments of no motivation to combine the references of Takahashi, Hwang, and Kitabayashi, and no reasonable expectation for replacing the transporting device of Takahashi with the electrostatic clamp of Kitabayashi et al. As noted above, Takahashi discloses a

Art Unit: 2851

lithographic apparatus having an illumination system for providing a beam of radiation and a conveying device (11-1) which can be regarded as “claimed article handler” for moving a cassette (9) which can be regarded as claimed article” during placement of the cassette/article on its support. Takahashi does not expressly disclose the conveying device/article handler being an electrostatic handler. Hwang teaches the electrostatic handler (20) comprising all basic features of an electrostatic handler such as: two electrodes (42, 57) and a dielectric layer (44) for forming an electrostatic clamping for electrostatically clamping the article (26). Kitabayashi et al teaches an electrostatic handler having all of the claimed limitations as recited in the dependent claims such as: an article handler (1) having at least three mutually distanced contact members (5) for contacting the articles (W), a dielectric layer (3) is provided with protrusions (5) to provided a gap between the dielectric layer (3) and the article (W) and the gap ranges between 0.1 and about 5 microns (see col.6, lines 33-35), the diameter of each of the protrusions is at most 3mm (see col.2, lines 43-44) and the electrostatic clamp is designed to provide a clamping pressure greater than about  $1.10^4$  Pa (see col.6, lines 50-51). Kitabayashi further teaches a metal pad bonded to the electrode in order to form a terminal for wiring and connecting the electrode to a power source. As discussed, since the rejection is made under 35 U.S.C. 103(a) the issue here is whether or not, one having ordinary skill in the art in the possession of Takahashi would have used the electrostatic handler of Hwang to transport the cassette/article during placement of the cassette on or removal from its support. Hwang disclosed that “more recently, electrostatic clamping has found increasing use” (see col.1, lines 32-33). In view of the teachings of Takahashi, Hwang and Kitabayashi, an artisan viewing Takahashi and wanting to transport the cassette/article (9) during placement of cassette/article or removal of the cassette/article (9) from

Art Unit: 2851

its support, would clearly have suggested the use of an electrostatic handler as taught by Hwang for “without the need for mechanically clamping”. There is no difference between the “cassette” and the “article” as claimed. Furthermore, as claimed, there is no evidence that reasonable expectation of replacing the transporting device of Takahashi with the electrostatic clamp of Kitabayashi et al would not be successful. It has been held that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. In this case, since the prior art article handler, as modified by Takahashi, Hwang and Kitabayashi, is capable of performing the intended use, as claimed, then the combination of these references meets the claims. It is noted that the applicant does not separately argue the distinct patentability of dependent claims. Thus, the Examiner assumes that dependent claims are not additionally patentable over and above the patentability of independent claims.

All arguments raised by the applicant have been fully addressed. Applicant's arguments do not comply with 37 CFR 1.111(c) because they do not clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited. Further, they do not show how the amendments avoid such references. For the reasons set forth above, the rejections of claims 1-18, 21-24 are maintained.

**6. THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

Art Unit: 2851

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Henry V. Nguyen whose telephone number is 571-272-2124. The examiner can normally be reached on Monday-Friday (First Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000

hvn  
5/29/06



HENRY HUNG NGUYEN  
PRIMARY EXAMINER